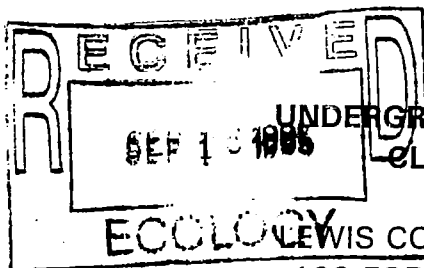


### **A.3 Historical Environmental Reports**



UNDERGROUND STORAGE TANK  
CLOSURE REPORT

LEWIS COUNTY CENTRAL SHOP  
109 FOREST NAPAVINE ROAD  
CHEHALIS, WASHINGTON

SW VG  
06004240  
012751  
2/3

Submitted To:

3 Kings Environmental, Inc.  
1704 Norris Road  
Vancouver, Washington 98661

Submitted By:

AGRA Earth & Environmental, Inc.  
7477 S. W. Tech Center Drive  
Portland, Oregon 97223-8024

21-07909-05

September 1995

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September 1, 1995  
21-07909-05

AGRA Earth & Environmental, Inc.  
7477 SW Tech Center Drive  
Portland, Oregon  
U.S.A. 97223-8025  
Tel (503) 639-3400  
Fax (503) 620-7892

Mr. Ron King  
3 Kings Environmental, Inc.  
1704 Norris Road  
Vancouver, Washington 98661

Dear Mr. King:

RE: UNDERGROUND STORAGE TANK CLOSURE REPORT  
LEWIS COUNTY CENTRAL SHOP  
109 FOREST NAPA VINE ROAD  
CHEHALIS, WASHINGTON

AGRA Earth & Environmental, Inc. (AEE), is pleased to submit this underground storage tank closure report for the above-referenced site. This report has been prepared to document the results of soil and groundwater sampling. These tasks were performed at the site on December 19, 1994 and January 11, 1995.

If you have any questions regarding this report or if you require any additional information, please contact the undersigned at (503) 639-3400.

Sincerely,

AGRA Earth & Environmental, Inc.

A handwritten signature in black ink, appearing to read "John L. Kuiper".

John L. Kuiper, P.G.  
Associate

JLK/skh



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## **1.0 INTRODUCTION**

AGRA Earth & Environmental, Inc. (AEE), has prepared this underground storage tank (UST) closure report on behalf of 3 Kings Environmental, Inc. to summarize the findings of soil and groundwater sampling performed at the subject site on December 19, 1994 and January 11, 1995. The site is located at 109 Forest Napavine Road, in Chehalis, Washington (Figure 1 - Site Location Map). General site features and the UST cavity location are presented on Figure 2 - Site Plan.

AEE's scope of services included the following:

- 1) Collection of soil samples and groundwater samples from the UST cavity;
- 2) Observation of field evidence of petroleum release(s);
- 3) Preparation of this tank closure report.

This report has been prepared for the exclusive use of 3 Kings Environmental, Lewis County, and its agents, for specific application to the subject site. Work has been carried out in accordance with generally accepted professional consulting practices. No other warranty, expressed or implied, is made. The opinions in this report are relevant to the dates of our work at the site. It should be understood that any property is vulnerable to environmental impairment from activities such as unreported or illicit dumping or spilling of deleterious materials that may not be readily apparent. The opinions and conclusions expressed in this report are based on our review of available information and our visual evaluation of current site conditions. If new information becomes available, it should be provided to AEE so that earlier conclusions can be amended as necessary.

## **2.0 SITE AND AREA CONDITIONS**

The Lewis County Central Shop is an operating highway and vehicle maintenance facility located on the south side of Jackson Highway, southeast of the town of Chehalis, Washington (Figure 1 - Site Location Map). Land usage in the site vicinity is rural in nature, with the nearest residence located within one quarter mile.

### **2.1 GEOGRAPHY/CLIMATE**

The Chehalis area is located in a lowland region which represents a continuation of the Willamette Valley to the south and the Puget lowland to the north. This area is bounded on the east by the foothills of the Cascade Mountains and on the west by the Coast Range.

The site vicinity has a modified marine climate with an approximate mean annual precipitation of 46 inches. More than 70 % of this precipitation falls as rain between October and May, with the summer being relatively dry.

## 2.2 REGIONAL GEOLOGY

The near surface geology in the Chehalis area is characterized predominantly by pre-Frasier Glaciation-age glacial outwash sand, gravel, and cobbles, with minor silt and clay. These alluvial sediments are underlain by Miocene-aged continental sedimentary rocks (sandstone, siltstone, and some conglomerate) which are exposed northeast of the site. These sedimentary rocks are in turn underlain by Oligocene to upper Eocene marine sedimentary rocks, middle to upper Eocene nearshore sedimentary rocks, and by Eocene-age andesite flows.

## 3.0 UST EXCAVATION AND SUBSURFACE CONDITIONS

Soil samples were collected by AEE personnel on December 19, 1994 and January 11, 1995 after an underground waste oil tank was decommissioned by removal. The 500-gallon steel tank was decommissioned on December 19, 1994 by 3 Kings. The tank was rusted, but no holes were detected in the tank. The tank cavity was over-excavated to an approximate depth of seven feet below grade. Visual evidence of impacted soils was observed at the north end of the cavity, around the fill pipe. Approximately 12 cubic yards of soil were removed from the cavity and were transported to the Lewis County Road Shop site in Toledo, Washington. These soils were stockpiled at the Toledo facility where they will be treated. The tank was pumped dry and was transported to another site owned by 3 Kings. The tank currently remains at the 3 Kings site, and eventually will be taken for recycling. Following receipt of analytical results, the tank cavity was backfilled with clean native material and 3/4 inch minus crushed rock.

Subsurface soils encountered in the tank cavity consisted of brown silts with some clay and gravel. Field evidence indicated petroleum-impacted soils along the north end of the cavity; these soils were discolored to grey and had slightly elevated readings on the photo-ionization detector (PID). Groundwater was encountered in the cavity at a depth of three feet below grade.

Three soil samples were collected from the tank cavity on December 19, 1994. These samples were collected from the north (NWSS), south (SWSS), and west (WWSS) cavity walls, above the soil/groundwater interface at approximately three feet below grade. A groundwater sample was not collected that day, due to heavy rainfall which caused surface run-off to enter the cavity. Fuel hydrocarbons were identified in the north wall sample, so the cavity was over-excavated on January 11, 1995, and an additional soil sample (NWS2) was collected from the north cavity wall. A groundwater sample (TCWS) was also collected from the tank cavity on January 11, 1995. Samples were observed and classified in the field. Representative portions of each sample were placed in labelled, sterile glass containers with Teflon-lined lids. Samples were stored and transported on ice under standard chain-of-custody procedures, and were transferred to the Columbia Inspection, Inc. laboratory in Portland, Oregon for chemical analysis.

A Washington State Department of Ecology Underground Storage Tank Site Check/Site Assessment Checklist is included in Appendix A.

#### 4.0 SOIL AND GROUNDWATER CLEANUP LEVELS

The Model Toxics Control Act (MTCA), Chapter 173-340WAC, contains guidelines for determining cleanup levels for soils and groundwater which are impacted with hazardous substances. Three basic methods (A, B, and C) have been established for determining cleanup levels. As indicated in Ecology's "Guidance for Remediation of Releases from Underground Storage Tanks" dated July 1991, Method A tables are intended to provide conservative cleanup standards for sites undergoing routine cleanup actions, or for sites with relatively few hazardous substances. It is usually the most appropriate method for leaking underground storage tank sites.

The MTCA Method A cleanup levels for petroleum hydrocarbon impacted soils and groundwater are as follows:

| <u>Substance</u>       | <u>Soil</u> | <u>Groundwater</u> |
|------------------------|-------------|--------------------|
| Benzene                | 0.5 ppm     | 0.005 ppm          |
| Toluene                | 40 ppm      | 0.040 ppm          |
| Ethylbenzene           | 20 ppm      | 0.030 ppm          |
| Xylenes                | 20 ppm      | 0.020 ppm          |
| TPH (gasoline range)   | 100 ppm     | 1.0 ppm            |
| TPH (diesel and other) | 200 ppm     | 1.0 ppm            |
| Total Lead             | 250 ppm     | 0.005 ppm          |

#### 5.0 QUANTITATIVE ANALYSES

Soil and groundwater samples from the tank cavity were submitted for analysis for petroleum hydrocarbon identification (WTPH-HCID). Follow-up analyses were subsequently performed to quantify the hydrocarbons present. Laboratory analyses were performed by Columbia Inspection, Inc., of Portland, Oregon. The laboratory was subcontracted by 3 Kings for the project. Soil and groundwater analytical results are presented below at the end of this section in Table 1. All laboratory analytical reports and chain-of-custody records are included in Appendix B.

##### 5.1 SOIL ANALYTICAL RESULTS

###### 5.1.1 Petroleum Hydrocarbon Identification (Ecology Method WTPH-HCID)

Four soil samples (SWSS, NWSS, WWSS, and NWS2) were analyzed for petroleum hydrocarbon identification by Ecology Method WTPH-HCID. HCID analytical results indicated the presence of diesel range hydrocarbons in the south wall sample (SWSS), and oil and

grease range hydrocarbons in the north wall sample (NWSS). No fuel hydrocarbons were identified in the west wall sample (WWSS) or in the second sample collected from the north cavity wall (NWS2).

#### 5.1.2 Diesel Range Fuel Hydrocarbons (Ecology Method WTPH-D)

One soil sample (SWSS) was analyzed for diesel fuel hydrocarbons by Ecology Method WTPH-D. A diesel fuel hydrocarbon concentration of 166 ppm was detected in this sample. This concentration is below the Ecology action level of 200 ppm for diesel.

#### 5.1.3 Total Petroleum Hydrocarbons (EPA Method 418.1 modified)

One soil sample (NWSS) was analyzed for total petroleum hydrocarbons by EPA Method 418.1 modified. A TPH concentration of 12,012 ppm was identified in this sample.

### 5.2 GROUNDWATER ANALYTICAL RESULTS

#### 5.2.1 Petroleum Hydrocarbon Identification (Ecology Method WTPH-HCID)

One groundwater sample (TCWS) was analyzed for petroleum hydrocarbon identification by Ecology Method WTPH-HCID. No fuel hydrocarbons were identified in this sample. It should be noted, however, that the laboratory detection limits of 18 ppm for gasoline and diesel range hydrocarbons, and 100 ppm for oil and grease hydrocarbons, exceed the MTCA Method A groundwater cleanup level of 1 ppm for these fuel constituents.

**TABLE 1**  
**SOIL AND GROUNDWATER ANALYTICAL RESULTS**

| SAMPLE #                   | ANALYTICAL RESULTS  |         |            |
|----------------------------|---------------------|---------|------------|
|                            | WTPH-HCID           | WTPH-D  | EPA 418.1  |
| SWSS (soil)                | diesel              | 166 ppm | ---        |
| NWSS (soil)                | oil & grease        | ---     | 12,012 ppm |
| NWS2 (soil)                | ND                  | ---     | ---        |
| WWSS (soil)                | ND                  | ---     | ---        |
| TCWS (water)               | ND                  | ---     | ---        |
| Detection Limits<br>in ppm | G/D = 18; O&G = 100 | 18      | 0.5        |



## 6.0 CONCLUSIONS

Based upon the results of field observations and the December 19, 1994 and January 11, 1995 sampling events, the following conclusions can be made:

- 1) Petroleum hydrocarbon-impacted soils were identified at the north end of the tank cavity, near the tank fill pipe. This impact was most likely caused by over-filling of the tank. Analytical results detected the presence of oil and grease in this area.
- 2) A total of approximately 12 cubic yards of impacted soils were excavated and removed from the tank cavity in December 1994 and January 1995. These soils were transferred to the Lewis County Road Shop in Toledo, Washington, where they will be treated.
- 3) Following over-excavation of the tank cavity in the area of impacted soils on January 11, 1995, an additional soil sample was collected from the north cavity wall where elevated petroleum hydrocarbon concentrations previously had been identified. No fuel hydrocarbons were detected in the soil sample collected in January 1995.
- 4) No fuel hydrocarbons were identified in a groundwater sample collected from the tank cavity on January 11, 1995. However, it should be noted that the laboratory detection limits for diesel and oil and grease exceed the Ecology cleanup levels for these compounds. We recommend re-sampling the groundwater in this area, and submitting the samples for analysis for WTPH-D, in order that the status of the groundwater quality in this area can be confirmed.

We are pleased to be of service to you on this project. If you have any questions, feel free to contact the undersigned at (503) 639-3400.

**AGRA Earth & Environmental, Inc.**

*Carol Means*

Carol Means  
Environmental Staff

*John L. Kuiper*

John L. Kuiper, P.G.  
Associate

JLK/skh

EQUIPM

AS



0 50 100  
SCALE IN FEET

FIGURE 2

LEWIS COUNTY CENTRAL SHOP  
109 FOREST-NAPAVINE ROAD  
CHEHALIS, WA

SITE PLAN

## APPENDIX A

### UST Site Check/Site Assessment Checklist



# UNDERGROUND STORAGE TANK TEMPORARY/PERMANENT CLOSURE and SITE ASSESSMENT NOTICE

See back of form for instructions  
Please ☒ the appropriate box(es)  
Please type or print information

☐ Temporary Tank Closure ☒ Permanent Tank Closure ☐ Change-In-Service ☒ Site Assessment/ Site Check

SW For Office Use Only VG  
Owner # 00004240  
Site # 012751

## SITE INFORMATION:

Site ID Number (on invoice or available from Ecology if the tanks are registered): \_\_\_\_\_  
Site/Business Name: Central Shop  
Site Address: 109 Forest Marine Road  
Chehalis Street WA State Telephone: (\_\_\_\_) \_\_\_\_\_  
City ZIP-Code

## TANK INFORMATION:

| Tank ID | Closure Date | Tank Capacity | Substance Stored |
|---------|--------------|---------------|------------------|
| 4       | 12/19/94     | 500 gallons   | Waste oil        |
|         |              |               |                  |
|         |              |               |                  |
|         |              |               |                  |
|         |              |               |                  |
|         |              |               |                  |
|         |              |               |                  |
|         |              |               |                  |
|         |              |               |                  |
|         |              |               |                  |

## CONTAMINATION PRESENT AT THE TIME OF CLOSURE

☒ Yes ☐ No



Check unknown if no obvious contamination was observed and sample results have not yet been received from analytical lab.

## UST SYSTEM OWNER/OPERATOR:

UST Owner/Operator: Lewis Family  
Owners Signature: [Signature] Telephone: (\_\_\_\_) \_\_\_\_\_  
Address: 350 North Market Blvd., 2nd floor  
Chehalis Street WA P.O. Box  
City State 98532 ZIP-Code

## TANK CLOSURE/CHANGE-IN-SERVICE PERFORMED BY:

Service Provider: 3 Kings Environmental, Inc. License Number: THREEXE066P5  
Licensed Supervisor: Ben King Decommissioning License Number: L002507  
Supervisors Signature: [Signature]  
Address: 1704 Norris Road  
Vancouver Street WA P.O. Box  
City State 98661 ZIP-Code  
Telephone: (360) 887-5464

## SITE CHECK/SITE ASSESSMENT CONDUCTED BY:

Name of Registered Site Assessor: Stephen M. Evans  
Telephone: (503) 639-3400  
Address: 7477 SW. Tech Center Drive  
Portland Street OR P.O. Box  
City State 97223-8025 ZIP-Code



# UNDERGROUND STORAGE TANK Site Check/Site Assessment Checklist

|         |                     |    |
|---------|---------------------|----|
| SW      | For Office Use Only | VG |
| Owner # | U0004240            |    |
| Site #  | 012751              |    |

## INSTRUCTIONS:

When a release has not been confirmed and reported, this Site Check/Site Assessment Checklist must be completed and signed by a person registered with Ecology. The results of the site check or site assessment must be included with this checklist. This form must be submitted to Ecology at the address shown below within 30 days after completion of the site check/site assessment.

**SITE INFORMATION:** Include the Ecology site ID number if the tanks are registered with Ecology. This number may be found on the tank owner's invoice or tank permit.

**TANK INFORMATION:** Please list all tanks for which the site check or site assessment is being conducted. Use the owner's tank ID numbers if available, and indicate tank capacity and substance stored.

**REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT:** Please check the appropriate item.

**CHECKLIST:** Please initial each item in the appropriate box.

**SITE ASSESSOR INFORMATION:** This form must be signed by the registered site assessor who is responsible for conducting the site check/site assessment.

Underground Storage Tank Section  
Department of Ecology  
P. O. Box 47655  
Olympia, WA 98504-7655

## SITE INFORMATION

Site ID Number (on invoice or available from Ecology if the tanks are registered): \_\_\_\_\_

Site/Business Name: Lewis County Central Shop

Site Address: 109 Forest Napavine Rd. Telephone: ( ) \_\_\_\_\_

Chehalis  
City

WA  
State

ZIP-Code

## TANK INFORMATION

Tank ID No.

Tank Capacity

Substance Stored

4

500 gal.

waste oil

## REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

- ☐ Investigate suspected release due to on-site environmental contamination
- ☐ Investigate suspected release due to off-site environmental contamination.
- ☐ Extend temporary closure of UST system for more than 12 months.
- ☐ UST system undergoing change-in-service.
- ☐ UST system permanently closed-in-place.
- ☒ UST system permanently closed with tank removed.
- ☐ Abandoned tank containing product.
- ☐ Required by Ecology or delegated agency for UST system closed before 12/22/88.
- ☐ Other (describe): \_\_\_\_\_

## **APPENDIX B**

Laboratory Analytical Reports  
Chain-of-Custody Documentation





# CERTIFICATE OF ANALYSIS

CLIENT: THREE KINGS ENVIRONMENTAL  
1704 NORRIS RD  
VANCOUVER WA 98661

PHONE: (206) 695-6882  
FAX: NONE

DATE SUBMITTED: 12/20/94

PO#:

PROJECT NAME: CENTRAL SHOP

| CI SAMPLE #   | CLIENTS ID# | DATE     | TIME | DESCRIPTION |
|---------------|-------------|----------|------|-------------|
| 941503-001-01 | SWSS-121994 | 12/19/94 | 1430 | SOIL        |
| 941503-002-01 | NWSS-121994 | 12/19/94 | 1430 | SOIL        |
| 941503-003-01 | WWSS-121994 | 12/19/94 | 1430 | SOIL        |


REPORT DATE: 12/21/94

REPORT NUMBER: 941503

PAGE: 1 OF 1

| SAMPLE        | TEST          | PARAMETER              | RESULT | UNIT | DETECTION<br>LIMIT | ANALYST  |
|---------------|---------------|------------------------|--------|------|--------------------|----------|
| 941503-001-01 | WTPH-HCID     | GASOLINE               | ND     | PPM  | 18                 | Marie B. |
|               | WDEQ TPH-HCID | DIESEL                 | DIESEL | PPM  | 18                 |          |
|               |               | OIL AND GREASE         | ND     | PPM  | 100                |          |
| 941503-001-01 | WTPH-D        | TPH AS DIESEL          | 166    | PPM  | 18                 | Marie B. |
|               | WDEQ TPH-D    |                        |        |      |                    |          |
| 941503-002-01 | WTPH-HCID     | GASOLINE               | ND     | PPM  | 18                 | Marie B. |
|               | WDEQ TPH-HCID | DIESEL                 | ND     | PPM  | 18                 |          |
|               |               | OIL AND GREASE         | O&G    | PPM  | 100                |          |
| 941503-002-01 | WTPH - SOIL   | PETROLEUM HYDROCARBONS | 12012  | PPM  | 0.5                | Jeff B.  |
|               | EPA 418.1M    |                        |        |      |                    |          |
| 941503-003-01 | WTPH-HCID     | GASOLINE               | ND     | PPM  | 18                 | Marie B. |
|               | WDEQ TPH-HCID | DIESEL                 | ND     | PPM  | 18                 |          |
|               |               | OIL AND GREASE         | ND     | PPM  | 100                |          |

REVIEWED BY:

  
David T. Back - Lab Manager

**Columbia Inspection, Inc.**

7133 N. Lombard St.  
P.O. Box 83569, St. Johns Station  
Portland, OR 97283-0569  
Phone: (503) 286-9464 Fax: (503) 286-7831



# UNDERGROUND STORAGE TANK

## 30 DAY NOTICE

See back of form for instructions

Please ☒ the appropriate box

☐ Intent  
to Install

☒ Intent  
to Close

☐ Both

For Office Use Only

Owner # 110004240

Site # 012751

### SITE INFORMATION:

Site ID Number (on invoice or available from Ecology if the tank is registered): 012751

Site/Business Name: Lewis County Public Services (Central Shop)

Site Address: 109 Forest Napavine Road Owner/Operator Telephone: (206) 740-1338

Chehalis

Washington

98532

### TANK INFORMATION:

#### TANKS TO BE CLOSED

This section to be filled out ONLY if tanks are being removed.

| Tank ID  | Projected Closure Date | Tank Capacity | Substance Stored | Date tank last used | Is there product in the tank? (yes/no) | If no, date tank was pumped |
|----------|------------------------|---------------|------------------|---------------------|--|-----------------------------|
| <u>4</u> | <u>12-94</u>           | <u>500</u>    | <u>Waste Oil</u> | <u>11-94</u>        | <u>Yes</u>                             |                             |
|          |                        |               |                  |                     |  |                             |
|          |                        |               |                  |                     |  |                             |
|          |                        |               |                  |                     |  |                             |
|          |                        |               |                  |                     |  |                             |
|          |                        |               |                  |                     |  |                             |
|          |                        |               |                  |                     |  |                             |
|          |                        |               |                  |                     |  |                             |
|          |                        |               |                  |                     |  |                             |
|          |                        |               |                  |                     |  |                             |

#### TANKS TO BE INSTALLED

This section to be filled out ONLY if tanks are being installed

Tank ID      Approx. Install Date

### TANK INSTALLATION TO BE PERFORMED BY (if known):

This section to be filled out ONLY if tanks are being installed

Service Provider: \_\_\_\_\_ Contact Name: \_\_\_\_\_

Telephone: (\_\_\_\_) \_\_\_\_\_

Address: \_\_\_\_\_

Street

P.O. Box

City

State

ZIP-Code

### TANK PERMANENT CLOSURE TO BE PERFORMED BY (if known):

This section to be filled out ONLY if tanks are being removed

Service Provider: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Telephone: (\_\_\_\_) \_\_\_\_\_

Address: \_\_\_\_\_

Street

P.O. Box

State

ZIP-Code

This form will be returned to this address

ATTN: John Newby  
UST OWNER/  
OPERATOR Lewis County Public Services

MAILING ADDRESS 350 North Market Blvd.

Street

Chehalis Washington

City

State

98532

ZIP-Code

Once validated by Ecology, this form serves as your temporary permit for the tanks listed above.

Please type or print information

ECY 020-33



**CHECKLIST**

Each item of the following checklist shall be initiated by the person registered with the Department of Ecology whose signature appears below.

|  | YES | NO |
|--|-----|----|
| 1. The location of the UST site is shown on a vicinity map.  | SE  |    |
| 2. A brief summary of information obtained during the site inspection is provided. (see Section 3.2 in site assessment guidance)   | SE  |    |
| 3. A summary of UST system data is provided. (see Section 3.1)   | SE  |    |
| 4. The soils characteristics at the UST site are described. (see Section 5.2)  | SE  |    |
| 5. Is there any apparent groundwater in the tank excavation?   | SE  |    |
| 6. A brief description of the surrounding land use is provided. (see Section 3.1)  | SE  |    |
| 7. Information has been provided indicating the number and types of samples collected, methods used to collect and analyze the samples, and the name and address of the laboratory used to perform the analyses.           | SE  |    |
| 8. A sketch or sketches showing the following items is provided:   |     |    |
| - location and ID number for all field samples collected   | SE  |    |
| - groundwater samples distinguished from soil samples (if applicable)  | SE  |    |
| - samples collected from stockpiled excavated soil   |     | NA |
| - tank and piping locations and limits of excavation pit   | SE  |    |
| - adjacent structures and streets  | SE  |    |
| - approximate locations of any on-site and nearby utilities  |     | NA |
| 9. If sampling procedures different from those specified in the guidance were used, has justification for using those alternative sampling procedures been provided? (see Section 3.4)                                     |     | NA |
| 10. A table is provided showing laboratory results for each sample collected including sample ID number, constituents analyzed for and corresponding concentration, analytical method and detection limit for that method. | SE  |    |
| 11. Any factors that may have compromised the quality of the data or validity of the results are described.  | SE  |    |
| 12. The results of this site check/site assessment indicate that a confirmed release of a regulated substance has not occurred.  |     | SE |

**SITE ASSESSOR INFORMATION**

Stephen M. Evans

AGRA Earth &amp; Environmental, Inc.

Person registered with Ecology

Firm Affiliated with

Business Address: 7477 SW Tech Center Dr.

Telephone: (503) 649-8827

Portland

OR

97223-8025

City

State

ZIP Code

I hereby certify that I have been in responsible charge of performing the site check/site assessment described above. Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

6/9/95

Date

Stephen M. Evans

Signature of Person Registered with Ecology

# UNDERGROUND STORAGE TANK Site Check/Site Assessment Checklist

## INSTRUCTIONS:

When a release has not been confirmed and reported, this Site Check/Site Assessment Checklist must be completed and signed by a person registered with Ecology. The results of the site check or site assessment must be included with this checklist. This form must be submitted to Ecology at the address shown below within 80 days after completion of the site check/site assessment.

**SITE INFORMATION:** Include the Ecology site ID number if the tanks are registered with Ecology. This number may be found on the tank owner's invoice or tank permit.

**TANK INFORMATION:** Please list all tanks for which the site check or site assessment is being conducted. Use the owner's tank ID numbers if available, and indicate tank capacity and substance stored.

**REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT:** Please check the appropriate item.

**CHECKLIST:** Please initial each item in the appropriate box.

**SITE ASSESSOR INFORMATION:** This form must be signed by the registered site assessor who is responsible for conducting the site check/site assessment.

Underground Storage Tank Section  
Department of Ecology  
P. O. Box 47655  
Olympia, WA 98504-7655

## SITE INFORMATION

Site ID Number (on invoice or available from Ecology if the tanks are registered): \_\_\_\_\_

Site/Business Name: Lewis County Central Shop

Site Address: 109 Forest Napavine Rd. Telephone: (\_\_\_\_) \_\_\_\_\_

Chehalis

WA

## TANK INFORMATION

Tank ID No.

4

Tank Capacity

500 gal.

Substance Stored

waste oil

## REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

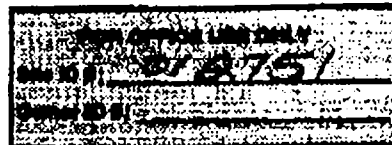
Check one:

- ☐ Investigate suspected release due to on-site environmental contamination
- ☐ Investigate suspected release due to off-site environmental contamination.
- ☐ Extend temporary closure of UST system for more than 12 months.
- ☐ UST system undergoing change-in-service.
- ☐ UST system permanently closed-in-place.
- ☒ UST system permanently closed with tank removed.
- ☐ Abandoned tank containing product.
- ☐ Required by Ecology or delegated agency for UST system closed before 12/22/88.
- ☐ Other (describe): \_\_\_\_\_



# UNDERGROUND STORAGE TANK Closure and Site Assessment Notice

See back of form for instructions



Please ☒ the appropriate box(es)

☐ Temporary Tank Closure ☐ Change-In-Service ☒ Permanent Tank Closure ☐ Site Check/Site Assessment

## Site Information

Site ID Number 012751

(Available from Ecology if the tanks are registered)

Site/Business Name CENTRAL SHOP

Site Address 109 FOREST NAPAVALINE RD

City/State CHEHALIS WA 98532

Zip Code 98532 Telephone (360) 740-1328

Owner's Signature PLS M FOR LEWIS COUNTY PUBLIC SERVICES

## Owner Information

(This form will be returned to this address)

UBT Owner/Operator LEWIS COUNTY PUBLIC SERVICES

Mailing Address 350 N MARKET BLVD

City/State CHEHALIS WASH.

Zip Code 98532 Telephone (360) 740-1123

## Tank Closure/Change-In-Service Company

Service Company 3 KINGS ENVIRONMENTAL

Certified Supervisor RONALD L KIM

Decommissioning Certification No. W002507

Supervisor's Signature [Signature]

Address 1704 NOARIS RD

City VANCOUVER WA 98661

Telephone (360) 695-6822

## Site Check/Site Assessor

Certified Site Assessor \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_ Telephone (\_\_\_\_) \_\_\_\_\_

## Tank Information

| Tank ID   | Closure Date    | Closure Method | Tank Capacity   | Substance Stored |
|-----------|-----------------|----------------|-----------------|------------------|
| <u>04</u> | <u>12-13-95</u> | <u>REMOVAL</u> | <u>500 G.L.</u> | <u>WASTE OIL</u> |
|           |                 |                |                 |                  |
|           |                 |                |                 |                  |
|           |                 |                |                 |                  |
|           |                 |                |                 |                  |
|           |                 |                |                 |                  |
|           |                 |                |                 |                  |
|           |                 |                |                 |                  |
|           |                 |                |                 |                  |
|           |                 |                |                 |                  |

## Contamination Present at the Time of Closure

☒ Yes ☐ No ☐ Unknown

Check unknown if no obvious contamination was observed and sample results have not yet been received from analytical lab.

☒ Yes ☐ No

If contamination is present, has the release been reported to the appropriate regional office?

## Search results of Washington State Publications

Miles, M.B., 1980, Flood profiles and inundated areas along the upper Cowlitz River, Lewis County, Washington, U.S. Geological Survey Water-Resources Investigations Open-File Report 80-225, 18p.

Weigle, J.M., and Foxworthy, B.L., 1962, Geology and ground-water resources of west-central Lewis County, Washington, Washington Division of Water-Resources Water-Supply Bulletin No. 17, 248p.

Your search produced 2 entries.



*Water Resources of Washington State*

*Send inquiries to our Public Information Officer*



P.O. Box 1190, Napavine, Washington 98565 - (360) 740-6390 - Fax (360) 740-6391

A Division of Sturza Enterprises, Incorporated

(012751)

File Name Lewis Co. Central Shop  
April 9, 1999

County Lewis

File Type TCP (not new)

Your Name DM

Ms. Patricia Martin  
Washington Department of Ecology  
Southwest Regional Office  
PO Box 47775  
Olympia, Washington 98504-7775

Re: Release Report & Initial Assessment: Lewis County Central Shop, 109 Forest-Napavine Road, Chehalis, Washington

Dear Ms. Martin:

Sturza Environmental, Inc. prepared this report to summarize activities performed regarding a petroleum hydrocarbon release discovered March 10, 1999 at the site referenced facility (Figure 1).

## BACKGROUND

A shop facility has been operated at the site for at least 40 years. Past and current activities conducted at the site include the following:

- Vehicle and construction equipment fueling;
- Vehicle and construction equipment maintenance;
- Vehicle and construction equipment washing;
- Sign making;
- Welding and;
- Equipment and construction material storage;

Petroleum products are stored in both aboveground and underground storage tanks at the facility. Three aboveground storage tanks (ASTs) are used to store road oil. One underground storage tank (UST) is used to store heating oil and two USTs store diesel fuel and gasoline.

A release was reported from USTs located near the current fuel island in 1990 (see Figure 2). After excavation and disposal of impacted soil, this release was reported cleaned up.

## **SCOPE OF WORK**

Sturza Environmental performed the following tasks:

- Initial Site Visit;
- Water removal and sampling;
- On-site Interviews;
- Ecology Meeting and;
- Work plan development.

### **Initial Site Visit**

On March 10, 1999 impacted water was observed entering footing excavations, during excavation activities associated with the construction of a new addition to the traffic control building. Upon request of the Lewis County facilities director, Sturza Environmental, Inc. visited the site on March 11, 1999 to make visual observations regarding potential impacts of the release of petroleum hydrocarbons to the environment. Three excavations contained water with a petroleum sheen. Groundwater was observed at approximately 2.5 feet (ft) below ground surface (bgs).

Petroleum hydrocarbon odors were observed near the stockpiles created during excavation activities. Soil was generally identified as silty clay beginning at approximately 2 ft bgs and continuing to the bottom of the excavation (5 ft bgs). This is consistent with the soil survey of the area, which identifies the soil as Salkum Silty Clay Loam (USCS 1980). The soil is covered by approximately 6 inches of asphalt material, then crushed rock to the surface.

On behalf of Lewis County, Sturza Environmental, Inc. submitted a telephone report of findings with the Washington Department of Ecology (Ecology) toxics cleanup program, consistent with Chapter 170-360 of the Washington Administrative Codes (Ecology 1996).

### **Water Removal**

Sturza Environmental, Inc. coordinated the removal of impacted groundwater from selected excavations on March 15, 1999. Approximately 2,700 gallons of impacted water was removed and transported offsite for disposal at licensed recycling facility consistent with Ecology document *Guidance for Remediation of Petroleum Contaminated Soils*, sections 1.3 and 1.75. Copies of transport and disposal receipts are provided in Appendix A.

A water sample (W-1) was collected from the water that re-entered the excavation after pumping and was analyzed for diesel and oil using method NWTPH-Dx. A water sample (W2-032599) was also collected and analyzed for volatile organic compounds using EPA method 8021B. A soil sample (S-1) was collected from one of the excavation sidewalls (see Figure 2).

Laboratory reports indicate diesel and oil at concentrations exceeding Ecology Method A cleanup levels for total petroleum hydrocarbons in groundwater. Additionally, diesel and oil concentrations exceeding Ecology Method A cleanup levels for total petroleum hydrocarbons in soil were also reported. Water and soil sample results laboratory reports are provided in Appendix B.

### **On-Site Interviews**

Sturza Environmental, Inc. and the facilities director interviewed employees regarding the referenced release. Specific information regarding past and current uses of the area were addressed. During our interviews no positive identification of the source or date of the release was obtained. However, based on past uses the following potential sources may have contributed to the release:

- Impacted imported fill;
- Removal of road patch from dump beds using diesel and;
- Equipment and truck parking.

Given the site soil type and distance to the onsite petroleum storage tanks, it appears unlikely they are the source of the subject release, unless an unknown transport pathway exists.

### **Ecology Meeting**

Sturza Environmental, Inc. met with representatives from Lewis County and Ecology's toxics cleanup program to discuss findings and present Lewis County's proposed course of action.

Since contamination generally consists of less mobile, long-chain hydrocarbons (aliphatics), and the soil type is silty clay, it is unlikely that the release has or will rapidly move away from this location. Therefore, Lewis County proposed long-term bioattenuation of the contamination. This plan includes additional assessment of site soil and groundwater to determine the nature and extent of petroleum impacts followed by installation of four groundwater monitoring wells around the release site. These wells will be monitored on a semi-annual basis for groundwater levels and contaminant

concentrations until trends can be established. This would allow continuance of construction activities at the site.

Ecology's representative, Mr. Chuck Cline, concurred that this was a reasonable course of action.

#### **Work Plan Development.**

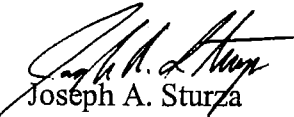
At the request of the facilities manager, Sturza Environmental, Inc. prepared a work plan for removing impacted groundwater during construction activities. Handling of impacted soil generated during construction activities was also addressed. This plan was prepared to inform site workers of handling protocol that conforms to applicable Ecology and OSHA regulations.

#### **SCHEDULE**

Upon completion of construction activities at the release site, Lewis County will perform further soil and groundwater assessment activities and install four groundwater monitoring wells. A semi-annual groundwater monitoring program will be initiated subsequent to well installation.

Please call if you have questions.

Sincerely,  
Sturza Environmental, Inc.

  
Joseph A. Sturza  
Vice President, Engineering

Attachments: Limitations  
References  
Figures 1 and 2  
Appendices A and B

cc/att: Mr. Chet Higgins, Lewis County Facilities  
Mr. Bill Chapman, Preston, Gates & Ellis, L.L.P.



## LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

The purpose of a geologic/hydrogeologic study is to reasonably characterize existing site conditions based on the geology/hydrogeology of the area. In performing such a study, it is understood that a balance must be struck between a reasonable inquiry into the site conditions and an exhaustive analysis of each conceivable environmental characteristic. The following paragraphs discuss the assumptions and parameters under which such an opinion is rendered.

No investigation is thorough enough to describe all geologic/ hydrogeologic conditions of interest at a given site. If conditions have not been identified during the study, such a finding should not therefore be construed as a guarantee of the absence of such conditions at the site, but rather as the result of the services performed within the scope, limitations, and cost of the work performed.

We are unable to report on or accurately predict events that may change the site conditions after the described services are performed, whether occurring naturally or caused by external forces. We assume no responsibility for conditions we were not authorized to evaluate, or conditions not generally recognized as predictable when services were performed.

Geologic/hydrogeologic conditions may exist at the site that cannot be identified solely by visual observation. Where subsurface exploratory work was performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at unsampled locations.

## REFERENCES

Ecology. 1992. *Guidance for Site Checks and Site Assessments for Underground Storage Tanks*. Washington Department of Ecology, Underground Storage Tank Cleanup Program. Publication No. 90-52. October.

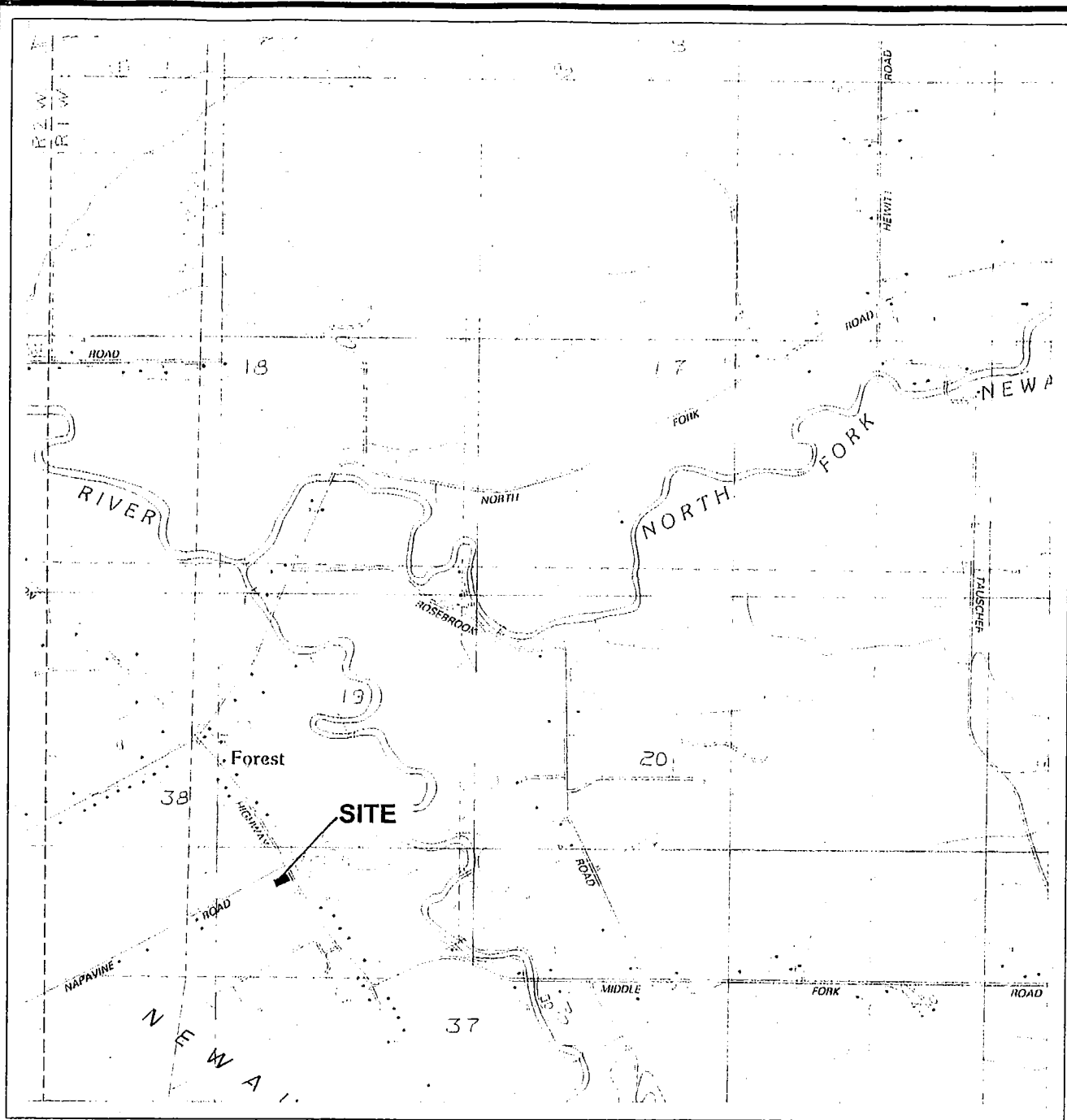
Ecology. 1994. *Guidance for Remediation of Petroleum Contaminated Soils*. Washington Department of Ecology, Toxics Cleanup Program. Publication No. 91-30. April.

Ecology. 1996. *The Model Toxics Control Act Cleanup Regulation, Chapter 173-340 WAC*. Washington Department of Ecology, Toxics Cleanup Program. Document Number 94-06. January.

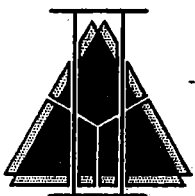
USCS. 1980. *Soil Survey of Lewis County Area, Washington* United States Department of the Agriculture, Soil Conservation Service

USGS. 1985. Jackson Prairie Quadrangle Quadrangle, 7.5-Minute Series (Topographic) United States Department of the Interior, Geological Survey

FIG. SITE LOCATION MAP.DWG.DWG - Printed: 1999 Mar 31 at 2:14:13 PM - XREFS: NO XREFS



BASE MAP: JACKSON PRAIRIE QUADRANGLE, WASHINGTON-OREGON, USGS 7.5 MINUTE SERIES, 1990

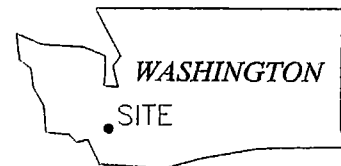


**STURZA**  
**ENVIRONMENTAL**  
**INCORPORATED**

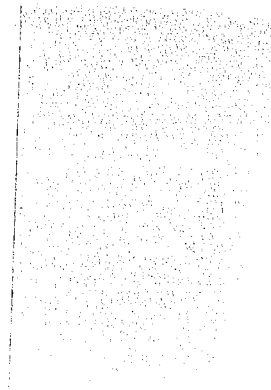
## FIGURE 1

LEWIS COUNTY CENTRAL SHOP  
109 FOREST-NAPAVINE ROAD  
CHEHALIS, WASHINGTON

**SITE LOCATION MAP**



**APPENDIX A**  
**OILY WATER DISPOSAL RECEIPTS**



MISSIN 6  
F16 #2

- ☐ Sweeping Service  
☐ Drain Service  
☐ Environmental Service  
☐ Recycling Service

# STATEMENT

**C C S**  
 Cowlitz Clean Sweep  
 55 International Way  
 Longview, WA 98632  
 (360) 423-6316  
 FAX (360) 423-3409  
 EPA ID #WAD988467197  
 COWLICS061R7  
 CC-47339  
 USDOT467272

Starza Environmental Inc.

DATE 3-15-99

004003

## STATEMENT

PLEASE PAY LAST AMOUNT IN BALANCE COLUMN

### Combination Bill of Lading and Freight Bill

Generator: Starza Environ. Inc.

Receiving Facility: *Walke*  
*FPI*

CCS Operation: Scot Morrow

Unit #: 71

Received by (TSD):

Customer warrants that the waste petroleum products being transferred by the above collector do not contain any contaminant's including, without limitations, pesticides, chlorinated solvents at concentrations greater than 1000 PPM. PCB's at greater concentrations than 2 PPM (or PPM with Manifest), or any other material classified as hazardous waste by 40 CFR part 261, customer Subparts C and D (implementing the Federal Resource Conservation and Recovery Act or by any equivalent State hazardous waste or hazardous substance classification program. Should laboratory tests find this waste product not in compliance with 40 CFR Part 261, customer (generator) agrees to pay for all disposal costs incurred.

Signed X *[Signature]*

Date 3-15-99

| QUANTITY | DESCRIPTION                | CHARGES | CREDITS | BALANCE  |
|----------|----------------------------|---------|---------|----------|
| 2700 gal | Oil Water                  |         |         |          |
|          |                            |         |         |          |
|          |                            |         |         |          |
|          |                            |         |         |          |
|          |                            |         |         |          |
|          |                            |         |         |          |
|          |                            |         |         |          |
|          |                            |         |         |          |
|          |                            |         |         |          |
|          |                            |         |         |          |
|          | Combustible Liquid NA 1993 |         |         | SUBTOTAL |
|          | Flammable Liquid UN 1203   |         |         | TAX      |
|          | OTHER                      |         |         | TOTAL    |

A FINANCIAL CHARGE OF 1 1/2% Per month may be applied to any Past Due amount. Past Due accounts may be placed on C.O.D. without notification. If outside collection action is necessary, purchaser shall pay all costs of collection including reasonable attorney's fees.

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Very sincerely,  


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**APPENDIX B**  
**LABORATORY REPORTS**  
**AND**  
**CHAIN-OF-CUSTODY FORMS**



March 19, 1999

Service Request No: K9901586

Joe Sturza  
Sturza Enterprises  
115 E. Wash Street  
P. O. Box 1190  
Napavine, WA 98565

**Re: Lewis County Central Shop**

Dear Joe:

Enclosed are the results of the rush sample(s) submitted to our laboratory on March 15, 1999. Preliminary results were telephoned on March 17 and 18, 1999. For your reference, these analyses have been assigned our service request number K9901586.

All analyses were performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 245.

Respectfully submitted,

**Columbia Analytical Services, Inc.**

Mingta Lin  
Project Chemist

ML/clb

Page 1 of 17



## Acronyms

|            |  |
|------------|--|
| ASTM       | American Society for Testing and Materials   |
| A2LA       | American Association for Laboratory Accreditation  |
| CARB       | California Air Resources Board   |
| CAS Number | Chemical Abstract Service registry Number  |
| CFC        | Chlorofluorocarbon   |
| CFU        | Colony-Forming Unit  |
| DEC        | Department of Environmental Conservation   |
| DEQ        | Department of Environmental Quality  |
| DHS        | Department of Health Services  |
| DOE        | Department of Ecology  |
| DOH        | Department of Health   |
| EPA        | U. S. Environmental Protection Agency  |
| ELAP       | Environmental Laboratory Accreditation Program   |
| GC         | Gas Chromatography   |
| GC/MS      | Gas Chromatography/Mass Spectrometry   |
| J          | Estimated concentration. The value is less than the method reporting limit, but greater than the method detection limit.                 |
| LUFT       | Leaking Underground Fuel Tank  |
| M          | Modified   |
| MCL        | Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA. |
| MDL        | Method Detection Limit   |
| MPN        | Most Probable Number   |
| MRL        | Method Reporting Limit   |
| NA         | Not Applicable   |
| NAN        | Not Analyzed   |
| NC         | Not Calculated   |
| NCASI      | National Council of the Paper Industry for Air and Stream Improvement  |
| ND         | Not Detected at or above the MRL   |
| NIOSH      | National Institute for Occupational Safety and Health  |
| PQL        | Practical Quantitation Limit   |
| RCRA       | Resource Conservation and Recovery Act   |
| SIM        | Selected Ion Monitoring  |
| TPH        | Total Petroleum Hydrocarbons   |
| tr         | Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.                           |

**COLUMBIA ANALYTICAL SERVICES, INC.**

**Client:** Sturza Environmental, Inc.  
**Project:** Lewis County Central Shop  
**Sample Matrix:** Soil & Water

**Service Request No.:** K9901568  
**Date Received:** 3/15/99

**CASE NARRATIVE**

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for sample(s) designated for Tier I data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

All EPA recommended holding times have been met for analyses in this sample delivery group.

The surrogate recovery of n-Triacontane for methods NWTPH-HCID and NWTPH-Dx in sample S-1 was outside the CAS control limit because of elevated levels of diesel and lube oil contained in this sample. Recovery of other surrogates were within the acceptance criteria. No further corrective action was taken.

Approved by mtl Date 3/18/99

00003

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Sturza Environmental, Inc.  
Project: Lewis County Central Shop  
Sample Matrix: Soil

Service Request: K9901586  
Date Collected: 3/15/99  
Date Received: 3/15/99  
Date Extracted: NA  
Date Analyzed: 3/15/99

Solids, Total  
EPA Method 160.3 Modified  
Units: Percent (%)

| Sample Name | Lab Code     | Result |
|-------------|--------------|--------|
| S-1         | K9901586-001 | 72.9   |

Approved By: mtl Date: 3/18/99

## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client: Sturza Environmental, Inc.  
Project: Lewis County Central Shop  
Sample Matrix: Soil

Service Request: K9901586  
Date Collected: 3/15/99  
Date Received: 3/15/99

Total Petroleum Hydrocarbon - Hydrocarbon Identification  
Northwest TPH-HCID

Sample Name: S-1  
Lab Code: K9901586-001  
Test Notes:

Units: mg/Kg (ppm)  
Basis: Dry

| Analyte           | Prep<br>Method | Analysis<br>Method | MRL | Dilution<br>Factor | Date<br>Extracted | Date<br>Analyzed | Result | Result<br>Notes |
|-------------------|----------------|--------------------|-----|--------------------|-------------------|------------------|--------|-----------------|
| Gasoline          | METHOD         | NWTPH-HCID         | 20  | 1                  | 3/15/99           | 3/17/99          | ND     |                 |
| Jet Fuel as JP-4  | METHOD         | NWTPH-HCID         | 20  | 1                  | 3/15/99           | 3/17/99          | ND     |                 |
| Mineral Spirits   | METHOD         | NWTPH-HCID         | 20  | 1                  | 3/15/99           | 3/17/99          | ND     |                 |
| Jet Fuel as Jet A | METHOD         | NWTPH-HCID         | 50  | 1                  | 3/15/99           | 3/17/99          | ND     |                 |
| Kerosene          | METHOD         | NWTPH-HCID         | 50  | 1                  | 3/15/99           | 3/17/99          | ND     |                 |
| Diesel            | METHOD         | NWTPH-HCID         | 50  | 1                  | 3/15/99           | 3/17/99          | D      |                 |
| Heavy Fuel Oil    | METHOD         | NWTPH-HCID         | 100 | 1                  | 3/15/99           | 3/17/99          | ND     |                 |
| Lube Oil          | METHOD         | NWTPH-HCID         | 100 | 1                  | 3/15/99           | 3/17/99          | D      |                 |

D

Detected at or above the method reporting limit. Follow-up analyses are required for quantitative results.

Approved By: \_\_\_\_\_

Date: \_\_\_\_\_

1S22/020597p

## Analytical Report

Service Request: K9901586  
Date Collected: NA  
Date Received: NA

Units: mg/Kg (ppm)  
Basis: Dry

00006

## Analytical Report

**Service Request:** K9901586  
**Date Collected:** 3/15/99  
**Date Received:** 3/15/99

Sample Name: W-1  
Lab Code: K9901586-003  
Test Notes:

Units: ug/L (ppb)  
Basis: NA

| Analyte           | Prep   | Analysis   | MRL | Dilution | Date      | Date     | Result | Result Notes |
|-------------------|--------|------------|-----|----------|-----------|----------|--------|--------------|
|                   | Method | Method     |     | Factor   | Extracted | Analyzed |        |              |
| Gasoline          | METHOD | NWTPH-HCID | 250 | 1        | 3/15/99   | 3/16/99  | ND     |              |
| Jet Fuel as JP-4  | METHOD | NWTPH-HCID | 250 | 1        | 3/15/99   | 3/16/99  | ND     |              |
| Mineral Spirits   | METHOD | NWTPH-HCID | 250 | 1        | 3/15/99   | 3/16/99  | ND     |              |
| Jet Fuel as Jet A | METHOD | NWTPH-HCID | 630 | 1        | 3/15/99   | 3/16/99  | ND     |              |
| Kerosene          | METHOD | NWTPH-HCID | 630 | 1        | 3/15/99   | 3/16/99  | ND     |              |
| Diesel            | METHOD | NWTPH-HCID | 630 | 1        | 3/15/99   | 3/16/99  | D      |              |
| Heavy Fuel Oil    | METHOD | NWTPH-HCID | 630 | 1        | 3/15/99   | 3/16/99  | ND     |              |
| Lube Oil          | METHOD | NWTPH-HCID | 630 | 1        | 3/15/99   | 3/16/99  | D      |              |

D

Detected at or above the method reporting limit. Follow-up analyses are required for quantitative results.

Approved By: TML Date: 3/17/99

1S22/020597p

01586PHC.LLI - 3 3/17/99

Page No.:

00007

## Analytical Report

Service Request: K9901586  
Date Collected: NA  
Date Received: NA

Units: ug/L (ppb)  
Basis: NA

| Analyte           | Prep Method | Analysis Method | MRL | Dilution Factor | Date Extracted | Date Analyzed | Result | Result Notes |
|-------------------|-------------|-----------------|-----|-----------------|----------------|---------------|--------|--------------|
| Gasoline          | METHOD      | NWTPH-HCID      | 250 | 1               | 3/15/99        | 3/16/99       | ND     |              |
| Jet Fuel as JP-4  | METHOD      | NWTPH-HCID      | 250 | 1               | 3/15/99        | 3/16/99       | ND     |              |
| Mineral Spirits   | METHOD      | NWTPH-HCID      | 250 | 1               | 3/15/99        | 3/16/99       | ND     |              |
| Jet Fuel as Jet A | METHOD      | NWTPH-HCID      | 630 | 1               | 3/15/99        | 3/16/99       | ND     |              |
| Kerosene          | METHOD      | NWTPH-HCID      | 630 | 1               | 3/15/99        | 3/16/99       | ND     |              |
| Diesel            | METHOD      | NWTPH-HCID      | 630 | 1               | 3/15/99        | 3/16/99       | ND     |              |
| Heavy Fuel Oil    | METHOD      | NWTPH-HCID      | 630 | 1               | 3/15/99        | 3/16/99       | ND     |              |
| Lube Oil          | METHOD      | NWTPH-HCID      | 630 | 1               | 3/15/99        | 3/16/99       | ND     |              |

00008

## Analytical Report

Service Request: K9901586  
Date Collected: 3/15/99  
Date Received: 3/15/99

Units: mg/Kg (ppm)  
Basis: Dry

| Analyte           | Prep Method | Analysis Method | MRL  | Dilution Factor | Date Extracted | Date Analyzed | Result | Result Notes |
|-------------------|-------------|-----------------|------|-----------------|----------------|---------------|--------|--------------|
| Mineral Spirits   | EPA 3550B   | NWTPH-Dx        | 250  | 10              | 3/15/99        | 3/17/99       | ND     |              |
| Jet Fuel as Jet A | EPA 3550B   | NWTPH-Dx        | 250  | 10              | 3/15/99        | 3/17/99       | ND     |              |
| Kerosene          | EPA 3550B   | NWTPH-Dx        | 250  | 10              | 3/15/99        | 3/17/99       | ND     |              |
| Diesel            | EPA 3550B   | NWTPH-Dx        | 250  | 10              | 3/15/99        | 3/17/99       | 10000  |              |
| Heavy Fuel Oil    | EPA 3550B   | NWTPH-Dx        | 1000 | 10              | 3/15/99        | 3/17/99       | ND     |              |
| Lube Oil          | EPA 3550B   | NWTPH-Dx        | 1000 | 10              | 3/15/99        | 3/17/99       | 9700   |              |
| PHC as Diesel     | EPA 3550B   | NWTPH-Dx        | 1000 | 10              | 3/15/99        | 3/17/99       | ND     |              |
| Non-PHC as Diesel | EPA 3550B   | NWTPH-Dx        | 1000 | 10              | 3/15/99        | 3/17/99       | ND     |              |

|                     |  |
|---------------------|--|
| PHC as Diesel Fuel: | Extractable Petroleum Hydrocarbon fingerprint not matching any of the target analytes. |
| Non-PHC as Diesel:  | Non-Petroleum Hydrocarbon components eluting in the extractable range of n-C8 - n-C44. |

IS22/020597p

00009



## Analytical Report

Service Request: K9901586  
Date Collected: NA  
Date Received: NA

Units: mg/Kg (ppm)  
Basis: NA

| Analyte           | Prep      | Analysis | MRL | Dilution | Date      | Date     | Result | Result Notes |
|-------------------|-----------|----------|-----|----------|-----------|----------|--------|--------------|
|                   | Method    | Method   |     | Factor   | Extracted | Analyzed |        |              |
| Mineral Spirits   | EPA 3550B | NWTPH-Dx | 25  | 1        | 3/15/99   | 3/17/99  | ND     |              |
| Jet Fuel as Jet A | EPA 3550B | NWTPH-Dx | 25  | 1        | 3/15/99   | 3/17/99  | ND     |              |
| Kerosene          | EPA 3550B | NWTPH-Dx | 25  | 1        | 3/15/99   | 3/17/99  | ND     |              |
| Diesel            | EPA 3550B | NWTPH-Dx | 25  | 1        | 3/15/99   | 3/17/99  | ND     |              |
| Heavy Fuel Oil    | EPA 3550B | NWTPH-Dx | 100 | 1        | 3/15/99   | 3/17/99  | ND     |              |
| Lube Oil          | EPA 3550B | NWTPH-Dx | 100 | 1        | 3/15/99   | 3/17/99  | ND     |              |
| PHC as Diesel     | EPA 3550B | NWTPH-Dx | 100 | 1        | 3/15/99   | 3/17/99  | ND     |              |
| Non-PHC as Diesel | EPA 3550B | NWTPH-Dx | 100 | 1        | 3/15/99   | 3/17/99  | ND     |              |

Approved By: 14 Date: 3/18/99

## Analytical Report

**Service Request:** K9901586  
**Date Collected:** 3/15/99  
**Date Received:** 3/15/99

Units: ug/L (ppb)  
Basis: NA

| Analyte           | Prep      | Analysis | MRL | Dilution | Date      | Date     | Result | Result Notes |
|-------------------|-----------|----------|-----|----------|-----------|----------|--------|--------------|
|                   | Method    | Method   |     | Factor   | Extracted | Analyzed |        |              |
| Mineral Spirits   | EPA 3510C | NWTPH-Dx | 250 | 1        | 3/15/99   | 3/17/99  | ND     |              |
| Jet Fuel as Jet A | EPA 3510C | NWTPH-Dx | 250 | 1        | 3/15/99   | 3/17/99  | ND     |              |
| Kerosene          | EPA 3510C | NWTPH-Dx | 250 | 1        | 3/15/99   | 3/17/99  | ND     |              |
| Diesel            | EPA 3510C | NWTPH-Dx | 250 | 1        | 3/15/99   | 3/17/99  | 943    |              |
| Heavy Fuel Oil    | EPA 3510C | NWTPH-Dx | 500 | 1        | 3/15/99   | 3/17/99  | ND     |              |
| Lube Oil          | EPA 3510C | NWTPH-Dx | 500 | 1        | 3/15/99   | 3/17/99  | 685    |              |
| PHC as Diesel     | EPA 3510C | NWTPH-Dx | 500 | 1        | 3/15/99   | 3/17/99  | ND     |              |
| Non-PHC as Diesel | EPA 3510C | NWTPH-Dx | 500 | 1        | 3/15/99   | 3/17/99  | ND     |              |

Approved By: TW Date: 3/18/19

## Analytical Report

Service Request: K9901586  
Date Collected: NA  
Date Received: NA

Sample Name: Method Blank  
Lab Code: K990315-MB  
Test Notes:

Units: ug/L (ppb)  
Basis: NA

| Analyte           | Prep Method | Analysis Method | MRL | Dilution Factor | Date Extracted | Date Analyzed | Result | Result Notes |
|-------------------|-------------|-----------------|-----|-----------------|----------------|---------------|--------|--------------|
| Mineral Spirits   | EPA 3510C   | NWTPH-Dx        | 250 | 1               | 3/15/99        | 3/16/99       | ND     |              |
| Jet Fuel as Jet A | EPA 3510C   | NWTPH-Dx        | 250 | 1               | 3/15/99        | 3/16/99       | ND     |              |
| Kerosene          | EPA 3510C   | NWTPH-Dx        | 250 | 1               | 3/15/99        | 3/16/99       | ND     |              |
| Diesel            | EPA 3510C   | NWTPH-Dx        | 250 | 1               | 3/15/99        | 3/16/99       | ND     |              |
| Heavy Fuel Oil    | EPA 3510C   | NWTPH-Dx        | 500 | 1               | 3/15/99        | 3/16/99       | ND     |              |
| Lube Oil          | EPA 3510C   | NWTPH-Dx        | 500 | 1               | 3/15/99        | 3/16/99       | ND     |              |
| PHC as Diesel     | EPA 3510C   | NWTPH-Dx        | 500 | 1               | 3/15/99        | 3/16/99       | ND     |              |
| Non-PHC as Diesel | EPA 3510C   | NWTPH-Dx        | 500 | 1               | 3/15/99        | 3/16/99       | ND     |              |

|                     |  |
|---------------------|--|
| PHC as Diesel Fuel: | Extractable Petroleum Hydrocarbon fingerprint not matching any of the target analytes. |
| Non-PHC as Diesel:  | Non-Petroleum Hydrocarbon components eluting in the extractable range of n-C8 - n-C44. |

Approved By: \_\_\_\_\_ Date: 3/18/99

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01586PHC.LL3 - MBlank 3/18/99

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## COLUMBIA ANALYTICAL SERVICES, INC.

## QA/QC Report

Client: Sturza Environmental, Inc.  
Project: Lewis County Central Shop  
Sample Matrix: Soil

Service Request: K9901586  
Date Collected: 3/15/99  
Date Received: 3/15/99  
Date Extracted: 3/15/99  
Date Analyzed: 3/17/99

Surrogate Recovery Summary  
Total Petroleum Hydrocarbon - Hydrocarbon Identification

Prep Method: METHOD  
Analysis Method: NWTPH-HCID

Units: PERCENT  
Basis: Dry

| Sample Name  | Lab Code     | Test Notes | P e r c e n t R e c o v e r y |                      |               |
|--------------|--------------|------------|-------------------------------|----------------------|---------------|
|              |              |            | o-Terphenyl                   | 4-Bromofluorobenzene | n-Triacontane |
| S-1          | K9901586-001 |            | 68                            | 116                  | NA            |
| Method Blank | K990315-SB   |            | 75                            | 65                   | 77            |

CAS Acceptance Limits: 50-150 50-150 50-150

NA Not Applicable; see case narrative.

Approved By: W Date: 3/17/99

## COLUMBIA ANALYTICAL SERVICES, INC.

## QA/QC Report

Client: Sturza Environmental, Inc.  
Project: Lewis County Central Shop  
Sample Matrix: Water

Service Request: K9901586  
Date Collected: 3/15/99  
Date Received: 3/15/99  
Date Extracted: 3/15/99  
Date Analyzed: 3/16-17/99

Surrogate Recovery Summary  
Total Petroleum Hydrocarbon - Hydrocarbon Identification

Prep Method: METHOD  
Analysis Method: NWTPH-HCID

Units: PERCENT  
Basis: NA

| Sample Name | Lab Code     | Test Notes | P e r c e n t R e c o v e r y |                      |               |
|-------------|--------------|------------|-------------------------------|----------------------|---------------|
|             |              |            | o-Terphenyl                   | 4-Bromofluorobenzene | n-Triacontane |
| W-1         | K9901586-003 |            | 74                            | 60                   | 81            |
| 3/16        | K990315-WB   |            | 84                            | 71                   | 87            |

CAS Acceptance Limits: 50-150 50-150 50-150

Approved By: TV Date: 3/17/99

## QA/QC Report

**Service Request:** K9901586  
**Date Collected:** 3/15/99  
**Date Received:** 3/15/99  
**Date Extracted:** 3/15/99  
**Date Analyzed:** 3/17/99

Prep Method: EPA 3550B  
Analysis Method: NWTPH-Dx

Units: PERCENT  
Basis: NA

| Sample Name  | Lab Code     | Test Notes | Percent Recovery |               |
|--------------|--------------|------------|------------------|---------------|
|              |              |            | o-Terphenyl      | n-Triacontane |
| S-1          | K9901586-001 |            | 68               | NA            |
| Method Blank | K990315-MB   |            | 75               | 77            |

|                        |        |        |
|------------------------|--------|--------|
| CAS Acceptance Limits: | 50-150 | 50-150 |
|------------------------|--------|--------|

NA Not Applicable; see case narrative.

Approved By: \_\_\_\_\_ Date: 3/18/99

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## QA/QC Report

**Service Request:** K9901586  
**Date Collected:** 3/15/99  
**Date Received:** 3/15/99  
**Date Extracted:** 3/15/99  
**Date Analyzed:** 316-17/99

Prep Method: EPA 3510C  
Analysis Method: NWTPH-Dx

Units: PERCENT  
Basis: NA

| Sample Name  | Lab Code     | Test Notes | Percent Recovery |               |
|--------------|--------------|------------|------------------|---------------|
|              |              |            | o-Terphenyl      | n-Triacontane |
| W-1          | K9901586-003 |            | 74               | 81            |
| Method Blank | K990315-MB   |            | 84               | 87            |

|                        |        |        |
|------------------------|--------|--------|
| CAS Acceptance Limits: | 50-150 | 50-150 |
|------------------------|--------|--------|

Approved By: \_\_\_\_\_ Date: 3/10/99



Columbia

# CHAIN OF CUSTODY

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TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

LEWIS COUNTY CENTRAL SHOP PROJECT

Washington

Sturza Environmental Inc.

Specific Halogenated and Aromatic Hydrocarbons (EPA 8021B) in Water

| SAMPLE DESCRIPTION          | Method  | W2-032599 |         |
|-----------------------------|---------|-----------|---------|
|                             | Blank   | Dup       |         |
| ug/l                        | ug/l    | ug/l      | ug/l    |
| DATE SAMPLED                | MDL     | 3/25/99   | 3/25/99 |
| DATE ANALYZED               | 3/25/99 | 3/25/99   | 3/25/99 |
| Vinyl Chloride              | 5.0     | nd        | nd      |
| Benzene                     | 1.0     | nd        | nd      |
| Toluene                     | 1.0     | nd        | nd      |
| Ethylbenzene                | 1.0     | nd        | nd      |
| Total Xylenes               | 1.0     | nd        | nd      |
| 1,1-Dichloroethene          | 1.0     | nd        | nd      |
| Methylene Chloride          | 1.0     | nd        | nd      |
| Trans-1,2-dichloroethene    | 1.0     | nd        | nd      |
| 1,1-Dichloroethane          | 1.0     | nd        | nd      |
| Cis-1,2-dichloroethene      | 1.0     | nd        | nd      |
| Chloroform                  | 1.0     | nd        | nd      |
| 1,1,1-Trichloroethane (TCA) | 1.0     | nd        | nd      |
| Carbontetrachloride         | 1.0     | nd        | nd      |
| 1,2-Dichloroethane          | 1.0     | nd        | nd      |
| Trichloroethene (TCE)       | 1.0     | nd        | nd      |
| 1,1,2-Trichloroethane       | 1.0     | nd        | nd      |
| Tetrachloroethene (PCE)     | 1.0     | nd        | nd      |
| 1,1,1,2-Tetrachloroethane   | 1.0     | nd        | nd      |
| 1,1,2,2-Tetrachloroethane   | 1.0     | nd        | nd      |
| SURROGATE RECOVERY (%)      | 124     | 131       | 89      |

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65%- 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

DATA REVIEWED BY: Michael Korosec

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

LEWIS COUNTY CENTRAL SHOP-PROJECT

Washington

Sturza Environmental Inc.

Specific Halogenated and Aromatic Hydrocarbons (EPA 8021B) in Water

| SAMPLE DESCRIPTION          | LCS  |         | MS      |
|-----------------------------|------|---------|---------|
|                             | ug/l | ug/l    | ug/l    |
| DATE SAMPLED                | MDL  |         |         |
| DATE ANALYZED               |      | 3/25/99 | 3/25/99 |
| Vinyl Chloride              | 5.0  | --      | --      |
| Benzene                     | 1.0  | 85%     | 87%     |
| Toluene                     | 1.0  | 104%    | 80%     |
| Ethylbenzene                | 1.0  | 117%    | 71%     |
| Total Xylenes               | 1.0  | 85%     | 79%     |
| 1,1-Dichloroethene          | 1.0  | 111%    | 103%    |
| Methylene Chloride          | 1.0  | 91%     | 116%    |
| Trans-1,2-dichloroethene    | 1.0  | 100%    | 110%    |
| 1,1-Dichloroethane          | 1.0  | 98%     | 113%    |
| Cis-1,2-dichloroethene      | 1.0  | 102%    | 116%    |
| Chloroform                  | 1.0  | 98%     | 113%    |
| 1,1,1-Trichloroethane (TCA) | 1.0  | 102%    | 100%    |
| Carbon tetrachloride        | 1.0  | 112%    | 102%    |
| 1,2-Dichloroethane          | 1.0  | 105%    | 122%    |
| Trichloroethene (TCE)       | 1.0  | 109%    | 105%    |
| 1,1,2-Trichloroethane       | 1.0  | 101%    | 129%    |
| Tetrachloroethene (PCE)     | 1.0  | 109%    | 102%    |
| 1,1,1,2-Tetrachloroethane   | 1.0  | 97%     | 108%    |
| 1,1,2,2-Tetrachloroethane   | 1.0  | 82%     | 130%    |
| SURROGATE RECOVERY (%)      |      | 103     | 99      |

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65%- 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

DATA REVIEWED BY: Michael Korosec



1999